

Patent claims

1. A device for applying liquid media, particularly  
5 culture media and/or reaction media, characterized  
in that the device has at least one elevation made  
of a hydrophobic material and with a substantially  
planar top limit surface, and this planar  
10 elevation has, on the top planar limit surface, at  
least one, in particular at least two, sharp-edged  
boundaries, in particular edges, arranged parallel  
to one another.
2. The device as claimed in claim 1, characterized in  
15 that the dimension of a planar elevation in a  
first direction, preferably in the longitudinal  
direction, is between about 2 and about 7 mm,  
preferably between about 3 and about 5 mm.
- 20 3. The device as claimed in claim 1 or claim 2,  
characterized in that the dimension of a planar  
elevation in a first direction, preferably in the  
longitudinal direction, is between 4 and 7 mm,  
preferably ca. 5 mm.
- 25 4. The device as claimed in one of the preceding  
claims, characterized in that the dimension of a  
planar elevation in a second direction, preferably  
in the transverse direction, is between about 3  
30 and about 9 mm, preferably between about 4 and  
about 7 mm.
5. The device as claimed in one of the preceding  
35 claims, characterized in that the dimension of a  
planar elevation in a second direction, preferably  
in the transverse direction, is between 5 and  
9 mm, preferably ca. 7 mm.

6. The device as claimed in one of the preceding claims, characterized in that the planar elevation is a narrow, elongate elevation.
- 5 7. The device as claimed in one of the preceding claims, characterized in that the planar elevation is between 1 and 5 mm high, preferably ca. 2 mm high.
- 10 8. The device as claimed in one of the preceding claims, characterized in that the device has at least two, preferably a multiplicity of, planar elevations.
- 15 9. The device as claimed in claim 8, characterized in that the number of planar elevations is at least 18 in the longitudinal direction and at least 9 in the transverse direction.
- 20 10. The device as claimed in claim 8, characterized in that the number of planar elevations is 12 in the longitudinal direction and 8 in the transverse direction.
- 25 11. The device as claimed in claim 8, 9 or 10, characterized in that the distance between two adjacent planar elevations is between 0.5 and 4 mm, preferably between 1 and 2 mm, in particular ca. 2 mm.
- 30 12. The device as claimed in one of the preceding claims, characterized in that the sharp-edged boundary is designed at an acute angle.
- 35 13. The device as claimed in one of the preceding claims, characterized in that it has a preferably rectangular main body on which the planar elevations are formed.

14. The device as claimed in one of the preceding claims, characterized in that the device consists at least partially, preferably completely, of at least one transparent material.
- 5 15. The device as claimed in claim 14, characterized in that the material is polystyrene and/or Plexiglas.
- 10 16. The device as claimed in one of the preceding claims, characterized in that the dimensions of the device are between 100 and 150 mm, preferably ca. 130 mm, in a first direction, preferably in the longitudinal direction, and between 80 and 15 110 mm, preferably ca. 90 mm, in a second direction, preferably in the transverse direction.
17. The device as claimed in one of the preceding claims, characterized in that the device has an overall height of between 10 and 30 mm, preferably 20 between 10 and 23 mm.
18. The device as claimed in one of the preceding claims, characterized in that the device has at 25 least one grip, preferably two grips.
19. The device as claimed in one of the preceding claims, characterized in that the device is designed so that it can be placed on a supporting 30 frame, the device preferably being able to be placed thereon with the surface to be loaded, or the loaded surface, facing upward or downward.
20. The device as claimed in one of the preceding 35 claims, characterized in that the device has at least one support, preferably several supports, in particular legs.
21. The device as claimed in one of the preceding

claims, characterized in that it is designed to be stackable.

- 5           22. The device as claimed in one of the preceding claims, in particular claim 21, characterized in that at least two devices can be releasably secured on one another.
- 10           23. The device as claimed in one of the preceding claims, characterized in that between 10 and 80  $\mu$ l, preferably 40 to 50  $\mu$ l, of liquid medium can be applied per elevation.
- 15           24. The device as claimed in one of the preceding claims, characterized in that the device can be turned at least 90°, preferably ca. 180°, after application of the liquid media.
- 20           25. A device for holding the device as claimed in one of the preceding claims, characterized in that the device consists of 2 to 4 spars, in particular 3 spars, which form an approximately rectangular frame.
- 25           26. The device as claimed in claim 25, characterized in that, on the upper edges, it has at least one recess, preferably at least two recesses, which are provided for receiving corresponding projections on the device to be held on it as
- 30           claimed in one of claims 1 through 24.
27. A method for generating suitable reaction and/or cultivation conditions after application of liquid media, characterized by the use of a device having
- 35           at least one feature of one of the preceding claims 1 through 24.
28. The method as claimed in claim 27, characterized in that the cultivation conditions are

proliferation and/or differentiation conditions for eukaryotic cells, in particular human or animal cells.

- 5 29. The method as claimed in claim 27 or claim 28, characterized in that the method is used for the purpose of tissue culture and/or tissue engineering.
- 10 30. The method as claimed in one of claims 27 through 29, characterized in that the cultivation conditions are stimulating and/or inhibiting and/or destroying conditions for the cultivation of tumor cells and/or tumor tissues.
- 15 31. The method as claimed in one of claims 27 through 30, characterized in that the cultivation conditions are growth and/or differentiation conditions for cell aggregates and/or tissues for influencing angiogenic processes in these cell aggregates and/or tissues.
- 20 32. The method as claimed in one of claims 28 through 31, characterized in that the human or animal cells are stem cells, in particular embryonic stem cells.
- 25 33. The method as claimed in claim 32, characterized in that the embryonic stem cells, after application to the device, aggregate and/or differentiate to form embryoid bodies.
- 30 34. The method as claimed in claim 27, characterized in that the reaction conditions are crystallization and/or X-ray structure analysis conditions.
- 35 35. A method for using drops as a reaction site, characterized in that a liquid medium is applied
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5 to the device as claimed in one of claims 1 through 24, and the device, with the loaded side facing downward, is oriented substantially horizontally or at an angle of about 90° or less to a base.

10 36. The method as claimed in claim 35, characterized in that, to remove the drop, the device, with the loaded side facing downward, is brought toward a substantially planar surface in such a way that the drop settles on the surface.

15 37. The method as claimed in claim 36, characterized in that the surface is provided with at least one spacer.

20 38. The method as claimed in claim 35, characterized in that, to remove the drop, the device, with the loaded side facing downward, is brought toward at least one depression so that the drop touches at least one side wall of the depression and runs down it.

25 39. The method as claimed in claim 38, characterized in that the depression is a depression of a microtiter plate.